CURRENTS IN SANDUSKY BAY.

Mr. E. L. Mosely, of the High School at Sandusky, Ohio, has published a paper in the eleventh annual report of the Ohio State Academy of Science, in which he gives the results of his investigation of the currents in Sandusky Bay and the adjacent lake. By placing tightly corked bottles at various points along the shore of the bay and observing where they finally rested, he has been able to show the influence of the wind on the movement of the water. Each bottle was fastened to a board about six inches square. When the bottle was empty, both board and bottle floated on the surface and were directly affected by the winds, but by weighting the bottles with sand the wooden float could be completely immersed in the water; the wire connecting the bottle and the float could be so adjusted as to bring the bottle at any level below the surface of the water. Eighty bottles were set adrift between July 26 and December 6, 1902. Of these 44 had been found before the freezing of the bay in December. Mr. Mosely says:

> The courses taken by the floats depend so closely upon the direction and velocity of the wind for some time before and after the bottle is put in that, with some experience, it will be possible to predict from the wind record what course the bottle will take. The bottle may go against the wind or may make a large angle with it. So long as it remains in the bay its course largely depends upon whether the water is rising or falling, and this, in turn, depends mainly upon the wind. If for several days the wind does not vary much in velocity or direction, the level of the bay adjusts itself to it, and no marked change of level will occur until the wind lessens or increases in force or changes in direction. If strong westerly winds have prevailed for some time and within twenty-four hours change to east or northeast, a strong current sets into the bay, while a reverse change of the wind will cause a strong current outward. At any point in the bay the current depends partly on the position with reference to shores or shoals, partly on the direct action of the wind on the water in that part of the bay, but chiefly on whether at the entrance to the bay the water is entering or leaving. These three factors affect both the direction and velocity of the current.

Strong winds and sudden changes of wind seem to make swifter and deeper currents, but it is difficult to get at the velocity of any current by this method of observation since we do not know accurately the time at which a float arrives at a given point. The influence of the jetties and of the changes of wind and of the general configuration of the shore lines, both of the lake and the bay, seems to be well made out. Mr. Mosely says:

> Brisk southwest winds often lower the water in the bay as much as 2 feet, and brisk northeast winds raise it that much above the usual level. Assuming the average depth of the entire bay to be 9 feet, a southwest wind will reduce it to 7 feet. A northeast wind following this may raise the level to 11 feet, and so bring into the bay from the lake more than half as much water as the bay contained a few hours before.

THE WEATHER OF THE MONTH.

By Mr. W. B. STOCKMAN, Forecast Official, in charge of Division of Meteorological Records.

CHARACTERISTICS OF THE WEATHER FOR MAY.

PRESSURE.

The distribution of mean atmospheric pressure is graphically shown on Chart IV and the average values and departures from normal are shown in Tables I and VI.

The mean pressure was highest over southern New England and the northern part of the Middle Atlantic States, and lowest over Arizona and New Mexico.

It was below the normal in western Minnesota, the Dakotas, eastern Nebraska, eastern Montana, southern Florida, Louisiana, and western Arkansas, and thence westward and northwestward to the central valleys of California. The departures, however, were small, the greatest occurring over western North Dakota and eastern Montana, and were less than .10 inch. In the remaining districts the mean pressure was above the normal, with decided departures, + .15 to + .17 inch, over New England and the northern portions of the Middle Atlantic States.

The mean pressure increased over that of April, 1903, in the Atlantic States, except southern Florida, the northern portion of the east Gulf States, the Ohio Valley and Tennessee, upper Mississippi Valley, and Lake region, and over western Washington; elsewhere it decreased from that of April, 1903, with but slight departures, the greatest being — .10 inch to — .12 inch, and occurred over the central valleys of California and southwestern Arizona. Over southern New England and the northeastern part of the Middle Atlantic States the increase in pressure over that of April ranged from + .25 inch to + .28 inch; and also was quite marked from North Carolina northward and from eastern Kentucky, western Ohio, and southeastern Michigan to the Atlantic Ocean.

TEMPERATURE OF THE AIR.

The distribution of maximum, minimum, and average surface temperatures is graphically shown by the lines on Chart VI.

The temperature was above the normal in north-central California, and from western North Dakota, South Dakota, and central Nebraska eastward, and southeastward over central North Carolina, to the Atlantic Ocean, except over the western portion of Lake Superior; elsewhere it was below the normal. Over the Middle Atlantic States, Ohio Valley, central Mississippi Valley, eastern upper Lake region, and the lower Lake region the excess of temperature was quite marked, ranging from an average of + 1.6° to + 4.7° per day. Over the southern portion of the east Gulf States, northern Florida, and from Louisiana and Texas northwestward to and beyond central and western Montana and northeastern Idaho the minus departures were rather marked, although they were not as large as in the region of excess of temperature. By geographic districts the greatest plus departures occurred in the lower Lake region, and averaged 3.4° per day; and the greatest minus departures in the middle Plateau region where they averaged 3.0° per day.

The average temperatures for the several geographic districts and the departures from the normal values are shown in the following table:

Average temperatures and departures from normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
		°	°	°	°
New England	8	55.3	+ 1.4	+14.9	+ 3.0
Middle Atlantic	12	63.4	+ 1.8	+15.2	+ 3.0
South Atlantic	10	69.4	— 0.2	+ 5.7	+ 1.1
Florida Peninsula*	8	74.8	— 1.1	+ 4.8	+ 1.0
East Gulf	9	70.8	— 1.6	— 3.7	— 0.7
West Gulf	7	70.7	— 1.9	— 4.3	— 0.9
Ohio Valley and Tennessee	11	67.8	+ 2.7	+ 8.0	+ 1.6
Lower Lake	8	60.1	+ 3.4	+15.5	+ 3.1
Upper Lake	10	54.2	+ 2.8	+17.1	+ 3.4
North Dakota*	8	54.7	+ 1.8	+ 8.1	+ 1.6
Upper Mississippi Valley	11	64.0	+ 2.5	+11.6	+ 2.3
Missouri Valley	11	61.7	+ 1.5	+ 7.5	+ 1.5
Northern Slope	7	52.1	— 1.4	+ 1.0	+ 0.2
Middle Slope	6	60.4	— 1.6	— 2.0	— 0.4
Southern Slope*	6	66.1	— 2.8	— 6.2	— 1.2
Southern Plateau*	13	62.5	— 2.0	— 7.7	— 1.5
Middle Plateau*	8	53.2	— 3.0	—17.5	— 3.5
Northern Plateau*	12	53.8	— 1.2	— 0.3	— 0.1
North Pacific	7	52.4	— 1.4	— 2.5	— 0.5
Middle Pacific	5	58.0	— 0.5	— 6.2	— 1.2
South Pacific	4	61.4	— 1.0	— 3.5	— 0.7

* Regular Weather Bureau and selected voluntary stations.

East of the one hundred and fifth meridian the isotherms of 60° and 70° lay considerably to the southward of their location in May, 1902. The isotherm of 90° of maximum temperature, as a rule, was to the southward of its position in May, 1902, yet maximum temperatures of 100°, or slightly higher,